

SIX NEW SPECIES OF CHRYSOBOTHRIS (BUPRESTIDÆ)  
FROM THE WESTERN UNITED STATES<sup>1</sup>

BY W. J. CHAMBERLIN, Ph.D.

*Oregon State College**Chrysobothris planomarginata* Chamberlin, new species

Medium elongate, somewhat robust, shining bronze above and beneath, sparsely pilose, pile short, silvery, more dense on head and prosternum. Head moderately coarsely, closely punctate with greenish reflections, occipital line distinct and separating into two lines near apex forming a Y; clypeus with a broad, fairly shallow, V-shaped emargination (Fig. 4) with sides rounded. Antennæ with basal segment longer than next two, these greenish, segments 4 to 11 serrate and nearly black, greenish black in some specimens.

Thorax about twice as wide as long, base slightly narrower than apex, widest in front of middle, sides evenly rounded, surface quite evidently convex, evenly punctate; median depressions faintly evident and a lateral fovea barely evident.

Elytra slightly wider than thorax, parallel to one-third from base thence narrowing and each elytron separately rounded, with no sign of serrations, first costæ entire, others interrupted. A distinct basal fovea and a less evident one near the humeral angle of each elytron, three or four small, densely punctate areas, much as in *C. mali*, are faintly evident on each elytron. Beneath slightly more shining; prosternum with well-developed lobe. Length 7.5 to 9 mm., width 3 to 3.5 mm.

Male: Front brassy green; anterior tibiæ arcuate and abruptly dilated at tip (Fig. 1), dilation about one-fifth length of tibia, basal half of dilation distinctly wider than apical half. Last ventral broadly, shallowly, semi-circularly emarginate; margins without serrations (Fig. 3).

Female: Front bronze, more shining beneath than male, tibiæ without apical dilation last ventral with a small shallow emargination, margins entire (Fig. 2).

Type and allotype from Bull Prairie, Lake County, Oregon, 7,000 feet elevation, July 24, in the collection of the writer. Other specimens from Grant County, Oregon.

The general size and shape of this species is similar to *C. contigua* but the entire elytra and the last ventral without serrate margins places it into a group with *C. boharti* Van Dyke<sup>2</sup>,

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<sup>2</sup> 1934, Van Dyke. New Species of Buprestidæ, etc., Ent. News 45: 89.

a group not recognized in Horn's key<sup>3</sup>. The following should be added to Horn's key on page 71 to take care of this new group:

Lateral margin of last ventral segment not serrulate, rarely interrupted.

Elytra acuminate at tip,.....Group VI

Elytra obtuse and serrulate at tip

Elytra with either costal or discal foveæ, sometimes with both, .....Group VII

Elytra without costæ or discal foveæ,.....Group VIII

Elytra individually rounded and not serrulate; anterior tibiæ of ♂ dilated at tip,.....Group IX

### *Chrysobothris scotti* Chamberlin, new species

Form of *cuprascens*; thorax only a little more shining than the body which is dull cupreo-æneous; antennæ with segments I and II subequal, first three segments about two-fifths of the entire length, serrate from the fourth and only slightly more slender towards the tip. Front coppery, finely pubescent, callosities only faintly evident, entire front finely, closely punctate. Clypeus with a broad shallow crescent-like emargination (Fig. 8), somewhat as in *speculifer*. Thorax twice as wide as long, widest in front of middle, margins sinuate, constricted at base and at middle; disc sparsely punctate at middle, densely at sides; median depression absent or only vaguely marked; a faint indication of a depression each side. Elytra much wider than thorax, basal foveæ prominent; first costa distinct except near base. Others interrupted but quite evident at basal third. Elytral margins serrate from the humeral angles to tips which are rounded.

Beneath purplish, more shining, finely, closely punctate; prosternum cupreous, densely, coarsely punctate, without lobe.

Last ventral ♂ (Fig. 7) broadly quite deeply emarginate; female with small rather deep semi-circular emargination (Fig. 6).

Anterior tibiæ of male (Fig. 5) with a very prominent obtuse tooth about one-third from apex.

Type locality Taos, New Mexico, collected by F. T. Scott who has paratypes. Type in author's collection.

This species belongs to Group III running to the *ignicolis*, *speculifer* divisions. It also has the general appearance of *cuprascens*. From the latter it is at once separable by the broadly emarginate clypeus; from *speculifer* it differs in the larger tooth one-third from apex of tibiæ; from *ignicolis* it differs by the

<sup>3</sup> 1886, Horn. A Monograph of the Species of Chrysobothris, etc., Trans. Am. Ent. Soc. XIII: 65-124.

duller color, front bronze not green as in the latter; the very large tooth fully one-third from the tip, whereas in *ignicollis* the smaller tooth is about one-fifth from the tip of the tibiæ.

I take pleasure in dedicating this species to Mr. Scott who has turned up several new species of Buprestidæ.

### *Chrysobothris calcarata* Chamberlin, new species

Form elongate slender; color above olive bronze with faint coppery tinge, uniformly, sparsely covered with short silvery pile; head slightly convex, front of male a beautiful shining metallic green changing to bright copper at vertex, closely, uniformly punctate, punctures so shallow as to give the front an almost smooth appearance. A coppery chevron is barely evident at the apex, and a green chevron is faintly evident near the middle of the front. Clypeus with a shallow, moderately broad emargination (Fig. 11). Thorax much wider in front than at the base, disc scarcely interrupted though there is just an indication of a small depression near the center of each lateral margin. Sides uniformly acute. No median depressions, though there is a wide smooth line running from base almost one-half way to front and a similar line runs a short distance laterally from near the middle.

Elytra noticeably wider than thorax gradually narrowing from the humeral angles to the apex, apices separately rounded and serrulate, elytra not entirely covering the abdomen. All costæ entire but not prominent, a deep median fovea at the base of each elytron. Entire surface closely, finely, uniformly punctate.

Prosternum prominently lobed, densely punctate with very fine pile, uniform bronze beneath. Abdominal segments smooth and shining along edges near center, laterally sparsely punctate and with fine white pile.

Male: antennæ bright green, coppery toward tip, serrate from fourth segment and slightly narrowing toward tip; first segment as long as next two together. Anterior femur with long acute tooth, serrulate on outer margin. Anterior tibiæ (Fig. 9) slightly arcuate and with a very small triangular tooth about one-fourth from apex. Last ventral segment with very wide, shallow emargination extending across the tip (Fig. 10).

Holotype, ♂, Prescott, Arizona. Described from single male. Type in the author's collection.

This species might be placed in Horn's Group I since the disc of the thorax is practically uninterrupted yet because of the slight interruption I am inclined to place it in Group III. The shape of the last ventral segment and the clypeus will at once separate it from any other species in either group.

### *Chrysobothris bisinuata* Chamberlin, new species

Form like *soror*; color above dull bronze; head with a distinct though very narrow impressed line running from base to front; the latter uniform bronze, sparsely, finely punctate, two callosities near middle. Clypeus with a fairly broad median shallow emargination (Fig. 13). Thorax more than twice as wide as long.

Base of elytra only slightly wider than thorax, parallel on basal two-thirds, thence gradually narrowed; each elytron separately rounded, faintly serrate. First costa entire except near tip and at the shallow basal foveæ, others interrupted at each end as well as at points one-half and two-thirds from base; surface finely, not closely, punctate; tips not quite covering abdomen. Disc of thorax without foveæ, callosities or median impression, sides regularly arcuate, width subequal at base and apex, surface finely, not closely, punctate. Entire upper surface with fine scattered pile.

Beneath more coppery shining, sparsely, finely punctate; prosternum lobed, densely coarsely punctate; last ventral long, quite narrow and distinctly bisinuate at apex (Fig. 12).

Described from a single female taken at Willows, California, by Dr. H. A. Scullen, July 2, 1935. Type in the author's collection.

This species falls in Group I. The thorax with equal base and apex and the bisinuate last ventral will at once separate it from all other species in the group.

### *Chrysobothris arizonica* Chamberlin, new species

Form narrow, long; color dark bronze. Head with occipital line faintly evident in male, lacking in female; front greenish, ♂, or bronze, ♀; slightly convex, closely punctate, punctures very shallow, pile scarcely evident. Clypeus of the female as shown in figure 16. Clypeus of male with emargination slightly deeper and more angulate. Antennæ of ♂ greenish bronze more slender to tip; ♀ similar, color blackish purple.

Thorax widest in front, sides slightly rounded, sharply constricted behind middle, disc uniformly closely, shallowly punctate. Elytra scarcely wider than thorax; two basal foveæ on each elytron fairly large, moderately deep; a very shallow fovea at center of wing cover and another almost two-thirds from base, the latter quite inconspicuous. First and second costæ evident on apical two-thirds, others scarcely evident; interspaces finely,

closely punctate; a very fine pubescence over upper surface; sides parallel for three-fifths from base, thence constricted. Elytral apices rounded, with serrate margins. Last dorsal segment partially exposed. Beneath purplish bronze in both sexes, a little more shining; prosternum lobed, with long silky hairs in the male, much less so in female. Last ventral of male with a very wide, rather shallow emargination, the bottom of which is quite straight (Fig. 15.) Last ventral of female serrate, rounded, without evident emargination. Anterior tibia of the male arcuate, and with a very small obtuse tooth quite near the tip (Fig. 14).

Length of male 5.2 mm., width 1.6 mm.; of female 6.4 mm., width 2 mm.

One pair from Coconino County, Arizona, taken many years ago. Type in author's collection.

This species falls in Group I near *micromorpha* and *piuta*. It differs from both by the more narrow form and dull color, the tibial spur and the shape of the last ventral segment.

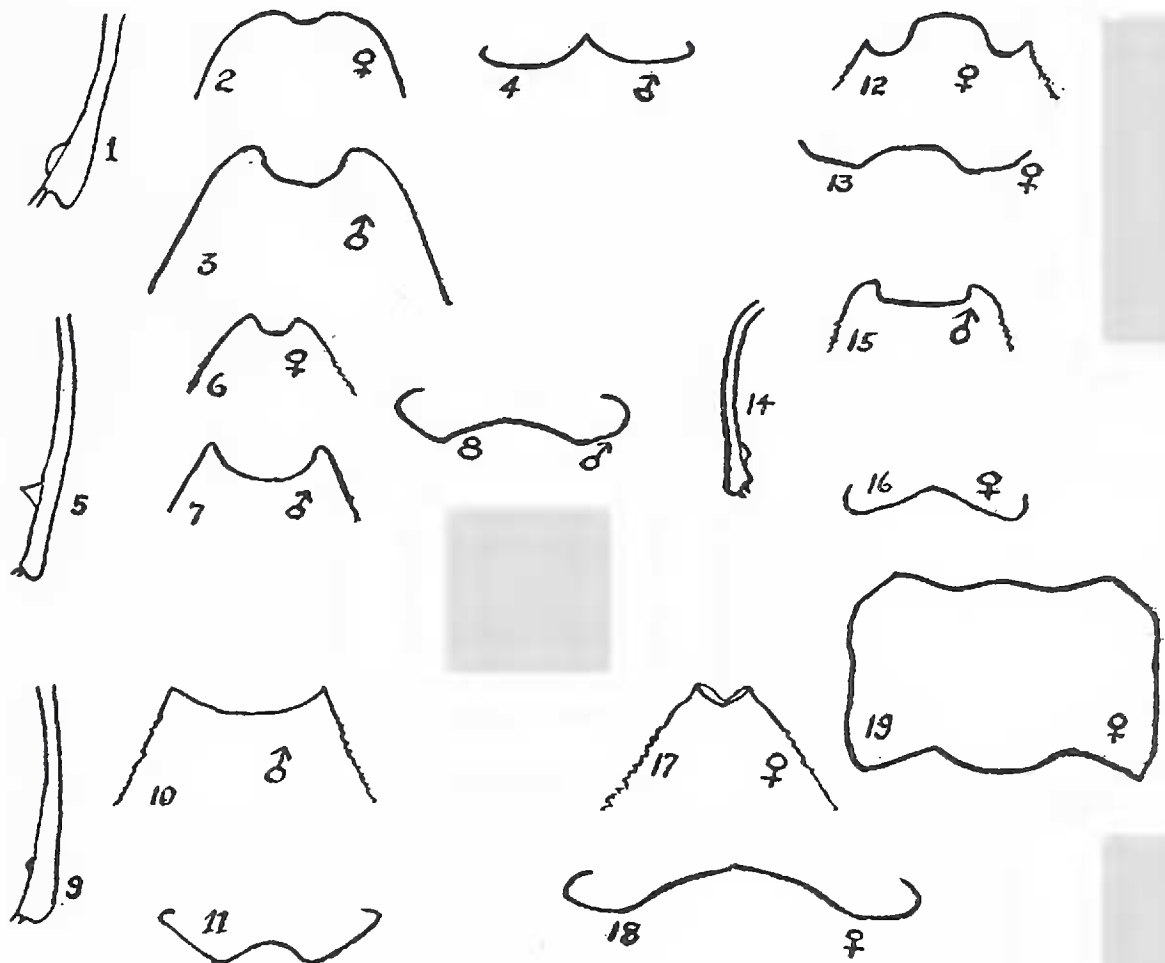
#### *Chrysobothris grandis* Chamberlin, new species

Form and size of *C. californica*. Female length 17 mm., width 6.6 mm.

Color above: elevated areas black and smooth, depressions cupreous-lilac; beneath more shining cupreous-lilac; front and antennæ of the same color; front coarsely punctate in center, more finely at the sides. Two large irregular callosities as usual; clypeus broadly arcuately emarginate, sides straight (Fig. 18); antennæ serrate from third segment; third segment subequal to the next two, more slender to the tip.

Thorax more than twice as wide as long, narrowed at apex and slightly so at base (Fig. 19). Disc very rough, a median depression from apex to one-fourth from base, finely, closely punctate, a large irregular smooth, elevated area at either side for one-half the distance from the front. A smaller one replaces the median depression at the base. A similar small elevated area connecting with the base at one-fifth from the basal angles. Thorax reticulate laterally, with rather wide lines, depression covered with whitish bloom. Elytral sculpture very similar to *californica* except that the elevated area is less extensive and the depressions are more lilac than coppery, with a white bloom. Body beneath finely sparsely punctate, prosternum coarsely punctate and almost devoid of pubescence, very prominently lobed (finely densely punctate in *californica*). Last ventral slightly wider than long, margins coarsely serrate, except near the tip; emargination shallow as in figure 17.

This species falls in Horn's group IV, and in general appearance would certainly be mistaken for *C. californica* but the prominently lobed prosternum at once separates it. In the group IV, with lobed prosternum, there is no species which



EXPLANATION OF PLATE

Fig. 1. Front tibia of *Chrysobothris planomarginata* n. sp.; Fig. 2. Last ventral segment ♀ *C. planomarginata*; Fig. 3. Last ventral segment ♂ *C. planomarginata*; Fig. 4. Clypeus male *C. planomarginata*; Fig. 5. Front tibia of *C. scotti* n. sp.; Fig. 6. Last ventral segment ♀ *C. scotti*; Fig. 7. Last ventral segment ♂ *C. scotti*; Fig. 8. Clypeus of ♂ *C. scotti*; Fig. 9. Front tibia of ♂ *C. calcarata* n. sp.; Fig. 10. Last ventral segment ♂ *C. calcarata*; Fig. 11. Clypeus ♂ *C. calcarata*; Fig. 12. Last ventral segment ♀ *C. bisinuata* n. sp.; Fig. 13. Clypeus ♀ *C. bisinuata*; Fig. 14. Front tibia ♂ *C. arizonica* n. sp.; Fig. 15. Last ventral ♂ *C. arizonica*; Fig. 16. Clypeus ♀ *C. arizonica*; Fig. 17. Last ventral segment ♂ *C. grandis* n. sp.; Fig. 18. Clypeus ♀ *C. grandis*; Fig. 19. Prothorax ♀ *C. grandis*.

approaches it in size except *C. woodgatei* C. & N., and this new species bears no resemblance to that species.

Described from a single female, labeled Fall Mountain Look-out trail, Grant County, Oregon, 5200-6000 ft., July 14, 1936, H. A. Scullen Coll. Type in author's collection.

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## AN OCCURRENCE OF PROTHETELY IN THE WIREWORM *MELANOTUS LONGULUS* LEC.

BY M. W. STONE<sup>1</sup>

Only two instances of prothetely in the Elateridæ have been recorded. Hyslop (1)<sup>2</sup> in 1916 described a specimen of *Melanotus communis* Gyll. which had both larval and pupal characteristics and Thomas (2) in 1933 described a similar abnormality which he had discovered in a larva of *Monocrepidius lividus* De G.

The writer also observed this rarity recently while examining a group of *Melanotus longulus* Lec. larvæ which had been reared in salve cans from the egg stage. The female which produced the eggs was collected on alfalfa near Temple, Calif. This specimen (Figs. 1 and 2), one of a group of 34, which hatched between May 13 and June 13, 1932, was found in the prothetelous state on August 27, 1935, after an elapsed period of 1,202 days. As the larva was extremely active, it was decided to kill and preserve the specimen before any possibility of breakage of the wing pads in case it attempted to re-enter the soil. A brief description follows:

The mouth-parts are normal and larviform. The antennæ are larviform but about twice normal size. The eyes are typically pupiform, being located in a membranous area directly behind the antennal base. As observed by Thomas (2) in *M. lividus*, the paired wing pads situated on the mesothorax and metathorax appear to rise directly from the body wall. They are not well developed, are distorted, and lack the normal striation found in typical pupæ. Apparently the left mesothoracic wing pad has broken off, as only a stub-like pad remains. The right mesothoracic wing pad is considerably broader and slightly longer than the metathoracic wing pads. The prothorax, except for being slightly enlarged, is normally larviform. The coxæ and tro-

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<sup>1</sup>Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Alhambra, Calif.

<sup>2</sup>Figures in parentheses refer to "Literature Cited."